MUSEUM STORIES FOR CHILDREN

Presented by

The James Nelson and Anna Louise Raymond Fund
for Children's Lectures and Entertainments

Series XIII, Number 1
February 22, 1930

FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

IN MEMORY OF GEORGE WASHINGTON

First Photoplay

"The Gateway to the West"

The following facts lead up to the play:

In 1749, the English organized the Ohio Company of Virginia to colonize the Ohio Valley.

In 1750, Christopher Gist went down the Ohio selecting sites for settlement. But, already, in 1749, Celeron de Bienville had proclaimed the land French soil.

The French constructed Fort Presqu'Isle (Erie), Fort Le Boeuf (Waterford), and Fort Venango (Franklin); the English began a fort at the junction of the Monongahela and the Allegheny Rivers, but the French captured it and christened it Fort Duquesne, after the Governor of Canada. This fort was the gateway to the west, and it is here the photoplay begins.

CHARACTERS

George Washington	Jumonville
Richard Corbin	Coulon de Villiers
Christopher Gist	William Pitt
Governor Dinwiddie	Half King

Duke of Newcastle

Second Photoplay

"Yorktown"

The following facts help to explain the second photoplay:

The Americans had no real navy during the Revolutionary War. Privateers had, however, inflicted tremendous damage to shipping. As American commanders of ships of war, John Barry and John Paul Jones had done important service.

Previous to the French Alliance of 1778, France had permitted American ships to use her harbors, and, after the Alliance, had aided the Americans through the operations of her fleet.

Not until 1781, however, did she make a strenuous effort to get possession of the western Atlantic. De Grasse was the officer in charge when the fleet reached Chesapeake Bay. Then Washington realized that the time for forcing a surrender had come.

CHARACTERS

George Washington	Sir Henry Clinton
Martha Washington	Lord Cornwallis
Jean-Baptiste Rochambeau	An American Private
Count Francois de Grasse	Soldier

Note: The showing of these Yale Chronicle films was made possible by the late Mr. Chauncey Keep, a Trustee, who presented the series to the Museum.

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STEPHEN C. SIMMS, Director

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Series XIII, Number 2
March 1, 1930

FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

LIMESTONE

There are many kinds of salt other than that we use in our foods. Some are found in the sea and others in the soils and rocks.

One of the most common salts is known as carbonate of lime. You usually see this salt in the form of limestone. The city of Chicago rests upon a mass of limestone, known as Niagara Limestone. As the waters flow over this rock, the impurities in the water dissolve the limestone and carry it to streams and rivers which in turn carry it to the seas.

Many of the sea animals make their shells, or tests, of this lime salt which they have taken from the water. A common example is the Foraminifera. These are animals so very small that most of them can not be seen, unless magnified many times. Their shells make our natural chalk. (Much of what is now called chalk is made of plaster of paris.) Coral reefs are also made of carbonate of lime—the reefs being the skeletons that remain after the death of the coral polyps.

Larger sea animals, including the fish, use the lime in forming their bones and teeth. When these animals die, their shells and skeletons sink to the bottom. In some parts of the seas, the salts form crystals. These and animal remains form an ooze which in time is cemented into the solid rock which we call limestone.

After millions of years some of this limestone may be raised above the sea to become land. Perhaps, this seems strange to you, but always some parts of the earth are rising whereas other parts are sinking. This rising or sinking goes on so slowly, however, that millions of years must pass before a whole continent can rise or sink. The ordinary coast moves only about a foot in a hundred years, so that during a human lifetime the change is barely noticeable.

Now you understand how the limestone under Chicago was made; you also realize that this part of North America must have been under the sea when that stone was forming. In it we may find many of the preserved shells, or fossils as we call them, of the ancient animals which lived in those warm waters. In some places, as near La Salle, Illinois, are layers of limestone made entirely of shells cemented together.

Limestone has a great number of important uses. Some, as the Indiana or Bedford stones, are used as building stones. Limestones

which have been greatly pressed by overlying layers form marble—an even more valuable building stone. In blast furnaces limestone is used as a flux in smelting iron. Some limestones, by burning, are made into quicklime; others are made into cement. Quicklime is used for mortar, in the manufacture of brick, carbide and glass, and for other purposes. Cement has many important uses. Portland cement was first made in England. Under water it hardened to a mass resembling the Portland building stone—hence the name. To make cement, the limestone is mixed with clay and burned. Then the mass of clinkers is ground to form the finished cement. In the United States, more than 150 millions of barrels of cement, valued at almost 300 million dollars, and four and one-half million tons of lime, valued at four and one-half million dollars, were made in 1925.

Waters containing carbon dioxide dissolve limestone. Regions containing this rock, as in southern Indiana and in Kentucky, are apt to have caves and underground channels. Sinks are formed when the roofs collapse. If the bottom is blocked, the sink may contain a pond; if there are open channels, underground rivers may result. When part of the roof of an underground river collapses, the part left standing forms a natural bridge.

Part of the water that drips in a cave evaporates and some of the dissolved limestone is left behind. From the roof, it collects in icicle-like stalactites, while on the floor upright formations, known as stalagmites, are formed. This process of evaporation is responsible for the lime coating seen on the inside of teakettles.

Sometimes, the lime in caves forms a coating on objects and so protects them from decay, as in the case of a human skull and burnt clay lamp which were found in an ancient Cretan cave.

FRANKLIN C. POTTER, Guide-lecturer

Note: Some of the numerous exhibits of lime carbonate to be seen in Field Museum are: a model of the Natural Bridge of Virginia, cave deposits and limestones in Hall 35; a cement plant model and cement rocks in Hall 36; an exhibit showing the uses of lime in Hall 37; fossils and the Cretan skull and lamp in Hall 38.

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FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
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HOLIDAYS AND GAMES OF JAPANESE CHILDREN

The most important of the many Japanese holidays comes at the New Year season. Since the modern Japanese use the same calendar that we do, their New Year festival begins on the first of January. It lasts fourteen days, during which many interesting ceremonies are performed in Japanese homes. On the first day, New Year's greetings are spoken first of all to the shrine of the ancestors, then to the grandparents, and then to the other members of the family in order of age, the youngest last. There are special things to eat on this day: a fish stew called "zoni," dumplings, puddings, spiced wine and tea. These are offered to the shrine of the ancestors before being served to the family.

Outside each front door, on either side, stand pine and bamboo saplings, with a straw rope between them, to keep out misfortune. These and other decorations at the New Year season are as important to the Japanese as our Christmas tree and holly wreath to us.

During the New Year holidays, the streets of Japan become playgrounds for the children. Boys walk on stilts, spin tops, jump rope as girls do here, or test their strength by pulling on loops of rope. The favorite sport is flying kites. Even grown men join the boys in this. Exciting games are played with kites of all sizes, often shaped and colored to represent fans, birds, butterflies, fish, or persons. Often, the first ten or twenty feet of kite strings are covered with glue and pounded glass. Then, as the kites fly, each boy tries to cut his opponent's string with his own. Often, also, a piece of bamboo or whalebone is attached to the string of a large kite so that it makes a loud humming noise as it goes up.

Little girls in gay kimonos run about like bright butterflies as they play skillfully with pretty silk-wound balls. A popular girls' game is battledore and shuttlecock. The battledores are flat sticks of wood, padded on one side with silk. With these the girls strike shuttlecocks made of large seeds, each with five bright feathers at one end. If a girl lets the shuttlecock drop she must have a black smudge on her face.

Other games, played by grown people as well as by children, are like our chess and checkers. There are card games, which are different from most of ours, though certain of them, played with poem cards and proverb cards, are much like our game of authors.

Although all the festivals of Japan are especially enjoyed by the children, they have two of their very own. The girls' is the Dolls' Festival, on the third of March. Little girls in Japan, like those in our country, have their dear, familiar, everyday dolls to play with, dress and undress, and even take to bed. But for the Dolls' Festival there are also special, splendid dolls, used only at this time. These are often very old, having belonged to the little girls' mothers and grandmothers before them. They represent the emperor and empress and other court personages, wearing specially woven costumes in the style of long ago. The little girls spread red cloth on shelves in the best room, and arrange the dolls. A pretty screen is set up on the top shelf, and the emperor and empress sit side by side before it. Below them the other personages are arranged. On this day the little girls have many parties. Bowing most respectfully, they offer cakes and sweet wine to the royal group, and then what the dolls do not eat, the girls do. The dolls remain in their place of honor for a week, admired by all who come to the house, and then they are carefully put away until the next year.

On the boys' day, the fifth of May, great paper figures of carp are displayed from the housetops like flags. This fish is believed to swim up waterfalls, and thus is considered a model of courage and strength. The boys also have an exhibit of dolls. These represent warriors and heroes, and are shown with armor, weapons, and flags. On their holiday the little boys dress in armor and listen to heroic stories of Japanese history and mythology, so that they may be inspired to be brave and strong.

JUNE WORK, Guide-lecturer

Note: In Frank W. Gunsaulus Hall, on the ground floor, is a set of dolls as they would look in a Japanese house on the Dolls' Festival. There are also two life-size figures of girls dressed for a party, and an exhibit of old-fashioned armor, besides other interesting displays from old Japan.

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FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

CARBON

When we have gone far enough in school to study chemistry we learn about "elements." This is the name given to substances that make up the earth and every thing on it. Carbon is one of the most important elements. In fact 17.6 per cent of our bodies is made of this one element.

Carbon is found in many different forms. Mixed with oxygen it is found in the air in the form of two different gases. Fortunately for us the poisonous carbon monoxide exists in very small quantities. The other, carbon dioxide, is a waste formed in the human body which we breathe into the air. Plants breathe the carbon dioxide into their bodies and use the carbon for building new plant matter. Then they return the oxygen to the air.

All plant matter contains some carbon, just as animal matter does. When plants die and decay, the carbon usually returns to the air as a gas, but if dead plants are covered with water they may be kept from decaying, or, as we usually say, from rotting. In swamps and bogs, the undecayed plant matter forms a mass known as peat, which burns well after being dried. Sometimes, the layers of peat are covered over with dirt and sand which, if cemented into rock, will press the peat so tightly as to change it into lignite. Lignite is a poor grade of coal. More pressure will change the lignite into soft (bituminous) coal or, if pressed long enough, it will be changed into hard (anthracite) coal. Beginning with peat, which is the poorest of the coal fuels, we find that the more the pressure, the better the fuel. Pressure squeezes out some of the impurities, so the harder the coal the higher the percentage of carbon. Another carbon fuel, coke, is made by heating coal in air-tight ovens. The coal gas given off in the ovens is still another carbon compound that is burned as a fuel, and it is from the coal tar that we get dyes, chemicals, creosote, and other useful things. Before leaving the story of coal we should mention jet—a hard, shiny form of lignite coal which is carved into jewelry.

Graphite, a form of pure carbon, is found scattered in the rocks. This mineral is so soft that it can easily be scratched with the finger nail. When mixed with clay it is used in lead pencils—more clay makes hard leads, more graphite makes soft leads. Its other important uses are: stove polish, lubricants, graphite paints, and crucibles. When

burned with clay it becomes hard and so difficult to melt that graphite crucibles are used for melting iron, copper, and other metals. As a lubricant, graphite is also very important, for it can be used at high temperatures which would burn ordinary oils or greases.

The most valuable form of carbon is the diamond. Pure graphite is one of the softest minerals; the diamond is the hardest substance on earth. Diamonds are so hard that jewelers must use other diamonds to cut them—nothing else is hard enough. Black diamonds, known as "carbonados," are used as the cutting edges in drills for making holes in rocks. Most clear diamonds are used as gems. They are beautiful because of their ability to break white light into different colors, and they are very durable. Although diamonds are very hard don't try to break one, for you may be surprised—it doesn't take a very hard blow to shatter one into pieces.

Natural gas and petroleum are other important carbon compounds. They are found in rocks under ground and probably have been squeezed from plant and animal remains buried in the rocks just as some buried plants were pressed into coal. Petroleum and gas are often found together, so a well drilled for either may yield gas first, and oil afterwards. By heating petroleum under pressure (distillation) it is broken up into gasoline, kerosene, naphtha, lubricating oils, asphalt, paraffin, and a number of other compounds.

These are but a few of the mixtures which carbon makes with other elements. There are more than two hundred thousand carbon compounds that we haven't mentioned. Remember that life, as it now is, couldn't exist without carbon.

FRANKLIN C. POTTER, Guide-lecturer

Note: Some of the exhibits having to do with carbon are: diamonds in Hall 31; jet in Hall 34; oil well, coal mine, peat bog, and petroleum refinery models; petroleum products, coal tar products, asphalt, graphite, coal, and diamonds in Hall 36.

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FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

CAMELS

The word "camel" brings to our minds all sorts of stories of adventure and romance. Just shut your eyes and think a minute. Did you not see a long caravan of camels, perhaps several hundred, wearily plodding across the great Arabian Desert?

We usually think of camels as living in a hot, dry desert in Asia or Africa. But camels did not always live in Africa, Arabia, Persia, India and Tibet as they do now. Millions of years ago they lived right here in our own North America. At first these camels were no larger than jack-rabbits. Gradually they increased in size until they were a little larger than the modern llama from South America.

Then came a time when the camels began to migrate to different parts of the country. Some moved northward, the older ones dying on the way, but the younger ones still slowly pushing north. After many, many years the descendants of some of these camels found their way into Alaska and then into Asia. At that time, there was a bridge of land from Alaska to Asia called "Bering Bridge."

Some camels stayed on in North America for a while but after a time these gradually died out. Thus, living camels disappeared from North America. Today skeletons of these early camels are often found in the western half of our country.

For years and years camels have been used by man. You read in the Bible about great caravans of camels carrying precious spices, myrrh and incense from the East. In those days, when a man spoke of his wealth, he did not say how many dollars he had, nor how much land, but how many camels he had in his herd.

The hair of the camels was spun and woven into clothing and tents; the milk of the camel was good to drink; the skins made water bottles and boots; and last of all they were beasts of burden traveling across the deserts—sometimes for eight days without water and very little food.

No doubt you wonder how any animal could go that long without water or much food. Like a cow, the camel has four stomachs. One of these stomachs looks like a honeycomb with many cells. When the camel finds water, he drinks from thirty to forty pints and about twenty pints of this water are stored in these cells or little water bottles. On the long march across the desert this water is slowly used.

The camels are well suited to their life in the desert; they have wide, cushioned feet so as not to sink in the sand; they have long, shaggy

eyelashes and hairs in their small ears and nostrils. These close to protect them against the sand. Their skin is tough with callous places on the knees and chests to protect them from the burning sands, when they kneel. They can see great distances and their sense of smell is so keen they can smell water miles away.

And now where do they carry their extra food? In their humps! These are just masses of fat and you can always tell what condition a camel is in by looking at his hump. The Arabs know that if the hump is large, the camel has plenty of food to start on a long journey. Perhaps, at the end of the march there will be no hump at all; it has all been used. The camels eat almost anything and as they march along, they stretch their long necks and nibble at any bit of green. They even eat the prickly-pear cactus, prickles and all.

There are really two kinds of camels—the Arabian camel with one hump and the Bactrian camel with two humps.

The Bactrians have short legs and long, shaggy hair. They are used as beasts of burden. They carry as much as 800 pounds and travel about thirty miles a day. Often these camels are used for ploughing. While they are obedient, they have a bad disposition. Seldom do they fail to wrinkle up their noses and snort when being loaded and they let out a "wonderful and yet horrible turkey-like gobble."

The Arabian or one-humped camels are more valuable and are given better care. They have long, slender legs and can travel rapidly. Some of the Arabian camels are higher bred than the others and are called dromedaries. They are used only for riding and racing, often traveling a hundred miles a day. The owners of these fine dromedaries often take them into their own tents at night.

Thus have camels become important to man. When all other animals failed, the camel or "ship of the desert" was there to serve him.

MIRIAM WOOD, Guide-lecturer

Note: In Ernest R. Graham Hall you may see a skeleton of a prehistoric camel of North America, and in Hall 19 you may see a skeleton of a camel of today.

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FIELD MUSEUM OF NATURAL HISTORY
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PAPER AND SILK FROM PLANT MATERIAL

For many thousands of years man has made use of plant material in various ways. One of the most important is in the making of writing material.

The early Egyptians made a kind of paper from thin strips split from the stalks of the papyrus reed which grew along the Nile. They pasted the strips together to form sheets on which they wrote with ink and reed pens. A number of sheets, pasted together in a single long strip and rolled from the ends, formed an Egyptian book. Papyrus is so durable that some of those books, three or four thousand years old, can still be read.

The ancient Chinese wrote on bone, bronze, ivory, wood, and silk. They made books of slips of bamboo fastened together. In India books were made of strips of the leaf of the talipot palm. About two thousand years ago, the Chinese say, an emperor of China commissioned a scholar named Tsai Lun to experiment until he discovered a better writing material. After some thirty years, Tsai Lun learned to make real paper, by beating cotton rags, bamboo shoots, or mulberry bark to a pulp, and drying the matted fibers in a thin sheet. In the course of several hundred years, the secret of paper-making spread to Korea, Japan, and Arabia. Damascus and Mecca became centers of a paper industry. The Arabs brought the secret to Europe, and by 1150 there were paper mills in Spain and Italy. In Europe, people had been using parchment, the prepared skins of animals, for their books and documents. They also knew the papyrus of Egypt, so they named the new material "paper," because it was like papyrus.

Until about a hundred years ago, practically all the paper manufactured in Europe and America was made of linen rags. Now wood pulp is used, especially spruce and pine, as well as cotton, bamboo, hemp, bark, straw, cornstalks, sugar cane, and grass. The important substance in all these materials is cellulose. It is cellulose that gives trees and plants their strength and toughness. In making paper the cellulose must be separated from the other substances mixed with it. The raw material is ground to a pulp in water. The pulp is chemically cleaned and bleached. When it has been thoroughly prepared, it is spread in a thin layer on fine wire screens, from which it is transferred to sheets of felt which carry it through hot metal rollers until it is well dried. Paper on which ink is to be used must have a sizing mixture

added to give a hard, smooth surface. This is commonly of rosin, starch, or clay.

This complicated process of making wood-pulp paper is not the only one, nor the first. The original paper maker is a wasp, which chews weather-beaten wood to pulp in her strong jaws, mixes it with juices from her mouth glands, and spreads it to dry as the walls of her tiny paper house.

Recently science has learned to imitate the product of another insect, the silkworm. This caterpillar eats mulberry leaves. The cellulose of the leaves, chewed fine, is subjected to chemical treatment in the body of the insect. Two glands or sacs within the body fill with a clear, sticky fluid, consisting mainly of the dissolved cellulose, ready to harden when it touches the air. When the silkworm is fully grown, that fluid is forced out through glands called "spinnerets." A single long thread is formed. Of it the caterpillar makes its cocoon. It is this fiber that man unwinds to spin into silk threads and weave into silk cloth.

In imitating the silkworm, man at first used cotton fibers. Now, spruce wood is generally used. Great machines chew the material to pulp, mix it with water and purifying chemicals, and bleach it. The practically pure cellulose is dissolved in some chemical which evaporates quickly in air or is quickly taken up in water. This solution is forced from tiny openings in artificial spinnerets, to form filaments in air or water. The filaments are often stretched to make them finer, and are spun and woven or knitted to make the fabric called "rayon." As yet man's silk has not equaled the silkworm's in elasticity or strength, but it improves constantly, and many people, who cannot afford the product made by a caterpillar from mulberry leaves, can enjoy the luxury of dressing in silk from the spruce tree.

JUNE WORK, Guide-lecturer

Note: In Charles F. Millspaugh Hall you will find spruce and pine trees such as are used in paper-making; in Hall 25 are books of talipot palm leaves; in Hall 28 are exhibits of cornstalk and mulberry bark paper, and of papyrus, and in Hall J are parts of old Egyptian papyrus books.

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April 5, 1930

FIELD MUSEUM OF NATURAL HISTORY
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A FEATHERED FISHERMAN

Spring brings many sports and pleasant pastimes. Among these, one of the most popular is fishing. Almost everyone enjoys this sport whether it is the boy with his willow pole and bent pin on the end of a string, fishing from a pier or up a little creek, or the man with his expensive rod and reel who travels miles for certain kinds of fish.

No matter what part of the world one fishes in, he generally meets a feathered fisherman, who, it must be admitted, is far more expert than he—the Kingfisher.

These birds are found in nearly every part of the world with the exception of very cold regions. There are over two hundred species of Kingfishers. They vary from little birds about three and one-half inches long to those attaining a length of seventeen inches. Many of them are brilliant, having the colors of the rainbow in their plumage.

Many legends have been written about these brilliantly-colored birds. One says that in the beginning Kingfishers were dull gray birds, and that the Kingfisher set free from Noah's Ark flew toward the setting sun. On its back was reflected the sky, while its breast was scorched by the rays from the sun. Today it still wears the colors of the evening sky.

The Belted Kingfisher is found in America from Alaska down to northern South America. We find it flying along the lake, over lagoons in the parks, small streams, ponds or other bodies of water which have plenty of fish.

This feathered fisherman does not look like any other bird. The head, back, wings and tail are bluish-gray. It has a broad bluish-gray band across its breast. Its throat and breast are white, as is the white collar about its neck. There is a white spot in front of each eye, and many small white spots on the wings and tail. A rather ragged crest tops its head and it has a long dagger-like beak. The male can be easily told from his mate. She wears a band of rufous-brown down her sides and across her breast below the gray one.

These dignified fishermen do not like company, so choose a certain part of a stream as their private property. If another Kingfisher comes into this territory he is driven away.

The Kingfishers may be seen sitting quietly alert on a dead branch over the water. From here they can see quite a distance. The minute the glint of a fish scale appears near the surface, down they dive like

a flash—head foremost—into the water, sometimes going beneath the surface, and seizing the fish. Emerging from the water with the fish in the bill, they shake the spray from their plumage and with a sharp, chuckling rattle fly to a favorite perch to enjoy the meal. If the fish is small it is swallowed whole, going down head first. If it is large it is beaten against a branch until small enough to be swallowed. Sometimes while flying the bird sights a fish and then, after coming to a fluttering halt, as if to take aim, he dives into the water and secures his prey.

The Kingfisher does not have much faith in man. No matter how hard one tries to get close to him, when he thinks the intruder has come close enough, he drops from his perch with a loud rattle, flies on ahead and alights. This may be repeated several times until he thinks he is getting too far from home. Then he makes a wide detour and returns to the starting point.

Early in May he and his mate dig a long tunnel in the side of a bank or gravel pit with their sharp beaks. At the end of this round tunnel, which may be from four to twenty feet long, they make a large chamber. The female lays from five to eight pure white eggs on the bottom of this cavity.

When the young Kingfishers hatch they are blind, naked and helpless. They grow very slowly and remain in the nest for several weeks. The parents are busy keeping these noisy, quarrelsome youngsters satisfied with food. The adults announce their coming with a series of rattles; bolt right into the hole; thrust the fish down the throat of one of the youngsters; remain half a minute; then back out; drop from the entrance; turn in the air and with a parting rattle are off for more fish.

Watch for this feathered fisherman this spring. You are almost sure to see him when you go to the parks or to the river for a picnic.

GORDON PEARSALL, Guide-lecturer

Note: In Hall 15 you will find a Belted Kingfisher in the Habitat Case of the Muskrat. In Hall 21, the Systematic Bird Hall, you may find some of the brilliantly-plumaged foreign Kingfishers.

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Presented by

The James Nelson and Anna Louise Raymond Fund
for Children's Lectures and Entertainments

Series XIII, Number 8
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FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

COMMON FLOWER FRIENDS

As March with its blustery winds departs and April with its balmier breezes draws near, a few brave flowers peep out from sheltered places to greet us. We welcome them and rejoice, for now we know that spring is on the way.

Among these early comers are the Pussy Willows. Their soft, furry coats keep out the chill of the winds. Perhaps you have not thought of these silken "Pussies" as flowers. Each little Pussy Willow contains a number of small flowers crowded together. When some of the "Pussies" are the prettiest, the flowers are covered with silky hairs. Later, the flowers open and show golden pollen, but no seed houses at all. If you look on another bush, perhaps you will find a different kind of Pussy Willow flower that has no pollen, very few silky hairs, but many little seed cases.

According to an old legend, the Willows, once upon a time, were fishermen. They were so busy fishing that they did not take time to worship the goddess Pales. She became angry and turned them into shrubs and trees that must stand beside the streams. So, today, we find the Willows leaning over the streams, as if watching for fish, sometimes wading in and dropping their twig lines into the water.

The Dandelions open their golden heads very early in the spring. At this time of the year, we really love them. We make whistles and curls from their stems, and sometimes we eat their young, tender leaves as greens. Later on, we call them weeds and dig them up. The word, Dandelion, comes from three French words, *dent de lion*, meaning, "lion's tooth." Some people say the leaves look like lions' teeth. Others say that the lion was once a symbol of the sun and that the Dandelion is a likeness of the sun, whence the name.

Dandelion flowers open only on sunshiny days. Then, if we examine one closely, we find about 200 tiny florets massed together in a head to make what we generally call one flower. Pull out one of these parts and look at it. You will see each is a complete flower.

After several days, the flowers lose their golden petals. In their place, we find a number of silky tufts forming a head which looks like a filmy, gray balloon. You know what happens next. The breezes play with the balloon and each tiny seed is carried away by its bit of fluff and all is gone.

Another early flower of spring is the golden Buttercup. A look into one of these waxy cups shows a mass of pollen and a seed case. The petals are bright and shiny, as if they had been varnished yellow. No wonder a bunch of these posies makes your chin look yellow as you hold them close to find whether you like butter or not.

Did you know that at the bottom of the inside of each petal there is a tiny pit and that each pit is filled with honey and covered with a golden scale for protection? The Buttercup has another name, "Ranunculus." It is a long name, but the first part, "Rana," means "little frog." This is a very old name. Its use probably started when someone found Buttercups growing in a wet place where frogs lived.

How impatiently we look for the first Violets, whether in our gardens or in the forest preserves. All are especially fond of the shy, Blue Violet, because it is our state flower. If you look at one closely you see that the lower petal is bearded or covered with hairs. This petal is a resting place for the bees. They cling to the hairs as they sip the nectar.

The lovely, velvety blossoms are showy, while, hidden beneath the leaves, are small flowers that never open. These flowers have no petals, just seed cases and stamens with pollen. Their purpose is only to make seeds.

Violets are used for food in some parts of England. The blossoms are boiled and pressed with milk, honey and rice blossoms; this is called "Vyolette." Does it sound good?

To the Indians, the Violet was a symbol of love, courage and devotion. So what flower could be better as the state flower of Illinois?

MIRIAM WOOD, Guide-lecturer

Note: At the south end of Stanley Field Hall may be seen cases with Buttercups and Violets. In the west end of Hall 21 is a habitat group of Prairie Chickens showing Dandelions in the bud and fully opened.

Save your Museum Stories. You will find them useful for looking up things you may want to know.

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STEPHEN C. SIMMS, Director

MUSEUM STORIES FOR CHILDREN

Presented by

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April 19, 1930

FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

CATS

Did you know that your pussy with its silken coat, soft purr and hidden claws has some very famous first cousins living in this and other lands?

Of all flesh-eating animals, the members of the cat family have been most feared by man since the earliest days. No other animal is so quick, so powerful for its size, or so treacherous. And yet, in spite of this treachery, certain kinds have become the playmates of children and the companions of hunters.

The early Egyptians were the first to domesticate the wild cat. This was a long, slow process. Once tamed, the animal assisted its master when he went fishing or bird-snaring. Many pictures show the cat stalking the waterfowl, as the master watches from his papyrus boat. Some cats were pets and their bodies were mummified and placed in the tombs with the bodies of their owners. Many beautiful bronze and wooden cats with eyes of obsidian or gold were made, for the cat was sacred to the goddess Bast. No one mistreated a cat in ancient Egypt. To do so was death.

Another cat used by the Egyptians was the Cheetah. This is an exceedingly graceful animal with long, slender hound-like body marked with solid black blotches. Like the hound it was an excellent hunter, and is often pictured with a collar about its neck and being led on a leash. For the first half mile the Cheetah is the fastest runner on earth. In one way this cat is like a dog. It can not pull back its claws as can all other members of the family.

Leopards and lions were also known in ancient Egypt. The famous Sphinx near the Great Pyramid of Gizeh has the body of a lion and the head of a man. When all the desert sands are removed, a massive lion is seen with forelegs outstretched as if quietly resting. No one knows how old this monument is, nor who built it.

Today, among certain tribes of Africa, the killing of a lion with a spear, and unaided, is the greatest feat a man can perform. To him who brings down the lion is accorded the privilege of wearing a head-dress made of the mane of the lion killed and of sitting with the ruler at ceremonies. Other African tribes seek the wary Leopards. They are far more difficult to secure as they are strictly night animals, never leaving their lairs until darkness falls. They hunt their food in the

forests where the roaring lions seldom go, and are much more silent than the lions. Leopard skins are wonderfully soft and silky and are used as cloaks by the natives.

Asia, too, has important cats. The Tiger is a native of the secluded watercourses where it springs upon the animals that come to drink. This cat is next to the lion in size, has no mane and, in the early days, was often taken when a cub and trained as a pet. In China, both lions and tigers have been used by the people. When a Persian king wished to send a gift to the ruler of China he sent a lion. This animal was sacred to Buddha and many stone lions are to be seen in temple courtyards even today. Tiger bones are highly prized as material for medicines for the cure of rheumatism and for a tonic which is given to soldiers to increase their courage.

North America has many varieties of cats. In Canada is the Lynx with its great padded feet, short tail and tufted ears. The enormous feet spread out like snowshoes. Sometimes, in the middle of a slow walk a Lynx will suddenly take a spring of from twelve to fifteen feet as if just to see how far he can go. The Bobcat of our own area is smaller than the Lynx. This is the animal which growls, hisses and spits when its home is invaded. Many fantastic stories have been written about this animal. In the south is the Eyra, the smallest member of the cat family. In form the Eyra is like an Otter and like an Otter it is an excellent swimmer. The Ocelot or Leopard Cat is an inhabitant of the cactus areas where he is called "The ring-tailed king of the underbrush." The Jaguar is the American Tiger and, unlike his eastern cousin, spends much of his time in the trees where he hunts and sleeps. The Puma or Mountain Lion is our best-known cat. Although accused of many atrocious crimes he is less to be dreaded than a savage dog.

MARGARET CORNELL, Guide-lecturer

Note: Field Museum has many exhibits relating to members of the cat family. In the Egyptian Hall are mummified cats and bronze statues of cats. Notice the mother cat with the two kittens. In Hall 15 are many American cats and a Lion and Tiger. In the Carl Akeley Memorial Hall you will find a family of Cheetahs and the famous Tsavo Lions.

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STEPHEN C. SIMMS, Director

MUSEUM STORIES FOR CHILDREN

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for Children's Lectures and Entertainments

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FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

THE GRAND CANYON

The canyon formed by the Colorado River as it flows from east to west across the northern part of the state of Arizona is one of the wonders of the world, and well it may be. Nowhere else is to be found such a spectacle of awe-inspiring beauty.

This great gash in the earth's surface was discovered, in 1540, by Cardenas, a member of Coronado's expedition. So thrilled were the Spanish by the appearance of the stream, they called the river "Tison," which is Spanish for "Firebrand." Sometime later, the name was changed to the one we use today. The discoverers made no attempt to descend the river. That remained for Major Powell who, in 1869, voyaged 1,000 miles of its length in a small boat. That story is one of the great epics of our history, and his deed is commemorated by giving his name to a part of the canyon.

As one stands upon the rim and looks downward, the eyes are conscious of a great depth at the bottom of which flows a swift, turbulent river hurrying to join the waters of the sea over a thousand miles away. Above the stream are walls looking as if Mother Nature had taken a giant paintbrush and drawn huge colored lines over the face of the rock. Then, not satisfied with color decoration, she had scooped out deep winding channels and recesses and carved massive forts, castles and temples on the edges of projecting peninsula-like formations. Some of the temple spires are slender needles rising almost to the rim.

Far in the distance, snow-capped mountains lift their white hoods. The tributaries which form the Colorado have their beginnings in these mountains. Between the canyon and the mountains the atmosphere is so dry and clear that the mountains appear much closer than they really are. Clouds are seldom seen, for this is an arid desert region. When they do form they rise very quickly and last but a short time. As the cool air from the depths strikes the moisture, the vapor condenses into rain or snow and falls upon the ledges below. Such places are often clothed with thick moss, ferns or evergreens and present a marked contrast to the barren slopes receiving less rainfall. Here only desert plants are found. The barrel cactus is the most common.

The rocks of the Grand Canyon have a most interesting history. Until comparatively recently, an inland sea extended up into what is now Arizona and New Mexico. As the animal life in that sea died,

its remains mixed with the sea ooze to form limestone. At intervals with this, there was deposited layer on layer of sand particles which had been washed into the water from the surrounding higher lands. This process continued until the underlying granite was overlain with thousands of feet of limestone, shale and sandstone.

Then a slow uprising of the western portion of the continent took place. Land began to rise out of the sea and the desert region of the southwest was one of the uplifts. The thrilling part is that the region is still rising. This gradual bowing of the earth's surface in that region while the river continued to cut its way through is responsible for the formation of the great gorge known as the Grand Canyon of the Colorado.

Most rivers flowing through desert regions are slow-moving, have broad channels and deposit quantities of silt as they go. But not so the Colorado. So high is the starting point of the stream that it has tremendous force and carries the gouged-out particles of rock as it goes. So thick is the silt which the water carries suspended in its grip that the name "Colorado" is easily justified. That is the Spanish word for "red." The river is indeed red. There is so much iron in the sandstones it colors the shales and limestones too. The dark brown of the lower granite walls, which extend for a thousand feet above the stream, is evidence of the antiquity of the base rock upon which the canyon rests. How much farther the river deepens its bed will depend entirely upon how far Mother Nature chooses to lift that part of our country.

MARGARET CORNELL, Guide-lecturer

Note: If you wish to study at close hand the marvelous work of the Colorado River visit Hall 35 where is exhibited a large physical map showing its course and the surrounding country. Then notice the asbestos, a beautiful pink in color, which was mined in the canyon and is shown in the Frederick Skiff Hall. In the Ernest R. Graham Hall, slabs of sandstone from the Grand Canyon show tracks of reptiles which walked upon the sand when the region was at sea level.

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